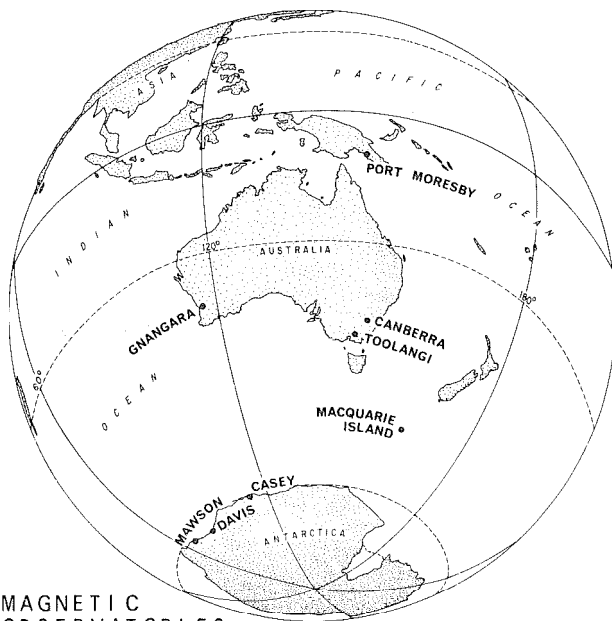




BUREAU OF MINERAL RESOURCES,
GEOLOGY & GEOPHYSICS

GEOPHYSICAL OBSERVATORY REPORT



MAGNETIC
OBSERVATORIES

Volume 27, No. 3
March 1979

DEPARTMENT OF NATIONAL DEVELOPMENT

MINISTER: The Hon. K.E. Newman, M.P.

SECRETARY: A. Woods

BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS

DIRECTOR: L.C. Noakes

THIS REPORT WAS PREPARED IN THE GEOPHYSICAL BRANCH

ASSISTANT DIRECTOR: N.G. Chamberlain

SUPERVISING GEOPHYSICIST: P.M. McGregor

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The observers at Casey and Davis are physicists of the Antarctic Division (Department of Science and the Environment) and their contributions are gratefully acknowledged: they and the BMR geophysicists at Macquarie Island and Mawson are members of the Australian National Antarctic Research Expeditions (ANARE).

The data from the Port Moresby geophysical observatory are contributed by the Geological Survey of Papua New Guinea.

The terminology used in this report is that accepted by international convention. The units of field intensity, nanotesla (nT), are those of the SI system. All times are in Universal Time. Should further information be required, apply to:

GEOPHYSICAL OBSERVATORY SUBSECTION
BUREAU OF MINERAL RESOURCES
P.O. BOX 378
CANNBERRA CITY, A.C.T. 2601

CONTRIBUTING OBSERVATORIES

OBSERVATORY	OBSERVER IN CHARGE	GEOGRAPHIC		GEOMAGNETIC	
		LAT	LONG	LAT	LONG
PORT MORESBY	I.D. Ripper	9°25'S	147°09'E	-18.6°	217.9°
GNANGARA	P.J. Gregson	31°47'S	115°57'E	-43.3°	185.8°
CANBERRA	R.S. Smith	35°19'S	149°22'E	-44.0°	224.7°
TOOLANGI	R.S. Smith	37°32'S	145°28'E	-46.7°	220.8°
MACQUARIE I	K.D. Wake-Dyster	54°30'S	158°57'E	-61.1°	243.1°
MAWSON	M.J. Sexton	67°36'S	62°53'E	-73.1°	102.9°
DAVIS	J. Morrisey	68°35'S	77°58'E	-76.7°	119.9°
CASEY	J. Hudsworth	66°17'S	110°32'E	-77.8°	179.1°

MAGNETOGRAPHS

OBSERVATORY	TYPE	NOMINAL SCALE VALUES					
		NORMAL			SENSITIVE		
		D	H	Z	D	H	Z
PORT MORESBY	La Cour	0.5	3	4			
GNANGARA	Eschenhagen	1	3	6			
TOOLANGI	La Cour	1	5	5			
MACQUARIE I	La Cour	2.5	20	21			
MAWSON	La Cour	2.5	21	22	1	10	10
CANBERRA	Elsec digital	D	F	I			
			0.1nT				

Scale values are in minutes of arc/mm (D) and nT/mm (H,Z)

MAGNETOMETERS

Absolute data are based on observations made with QHM'S BMZ's declinometers and proton precession magnetometers.
 Errors in preliminary values are not likely to exceed 5 nT or 0.5 minutes.

PORT MORESBY

MAGNETIC K-INDICES - MARCH 1979

Range for lower limit of K = 9 is 300 nT

<u>Day</u>	<u>K-Indices</u>				<u>K-Sum</u>				
01	2	1	2	3	2	2	2	2	16
02	3	2	1	3	2	2	2	2	17
03	2	1	1	1	4	4	2	2	17
04	2	3	4	6	4	4	3	3	29
05	3	3	3	4	1	1	1	2	18
06	3	3	4	5	5	5	3	3	31
07	2	2	2	0	0	2	2	1	11
08	0	0	1	2	2	0	1	0	06
09	-	-	-	-	-	-	-	-	--
10	-	-	-	-	-	-	-	-	--
11	-	-	-	-	-	-	-	-	--
12	0	0	0	0	0	1	0	0	01
13	1	2	2	1	1	1	0	0	08
14	0	1	0	0	0	0	0	0	01
15	0	2	2	2	3	3	2	3	17
16	3	3	3	3	3	2	2	3	22
17	4	4	5	4	3	2	2	3	27
18	2	2	2	2	2	1	1	0	12
19	0	0	2	4	3	3	2	2	16
20	2	1	1	1	1	2	2	1	11
21	0	1	1	1	2	1	1	2	09
22	1	1	4	7	5	5	4	3	30
23	3	3	3	2	2	1	2	1	17
24	2	3	5	4	2	2	1	3	22
25	2	2	3	3	3	2	2	3	20
26	3	3	4	3	4	3	3	1	24
27	1	2	4	3	4	2	3	3	22
28	3	2	4	5	5	4	2	3	28
29	3	4	5	5	4	4	5	4	34
30	3	3	3	2	1	2	1	2	17
31	2	2	2	1	2	3	3	3	18

GNANGARA

MAGNETIC K-INDICES - MARCH 1979

Range for lower limit of K = 9 is 450 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	4	3	2	3	2	3	3	3	23
02	3	3	3	3	3	3	4	3	25
03	3	3	1	2	1	3	3	3	19
04	3	2	2	4	3	4	4	5	27
05	3	2	3	3	2	1	3	3	20
06	3	3	3	5	5	4	4	5	32
07	2	3	2	0	1	2	1	4	15
08	2	1	1	2	2	1	1	2	12
09	2	0	3	3	2	2	2	5	19
10	4	3	3	3	4	4	5	5	31
11	4	3	3	3	3	3	1	0	20
12	1	1	2	1	1	1	2	2	11
13	2	2	3	2	1	1	0	1	12
14	1	1	1	1	0	0	1	2	07
15	1	2	2	1	2	2	2	3	15
16	3	2	2	2	2	1	1	2	15
17	4	3	5	3	2	1	1	3	22
18	3	2	1	1	2	1	0	0	10
19	0	0	2	3	3	3	3	2	16
20	2	1	1	1	1	2	1	2	11
21	1	1	2	2	1	1	2	2	12
22	1	2	4	5	5	5	4	3	29
23	3	3	4	2	2	2	3	2	21
24	3	3	3	3	2	2	3	3	22
25	3	3	4	3	3	3	3	4	26
26	3	3	3	3	4	4	4	5	29
27	2	2	3	3	4	3	4	4	25
28	3	2	3	5	5	4	4	5	31
29	4	4	4	4	4	4	6	5	35
30	4	3	3	3	2	1	2	1	19
31	4	3	3	2	3	3	4	4	26

TOOLANGI

MAGNETIC K-INDICES - MARCH 1979

Range for lower limit of K = 9 is 500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	2	2	3	3	2	2	1	17
02	2	3	2	4	3	3	2	2	21
03	2	1	2	0	3	3	2	1	14
04	3	3	3	4	3	3	3	4	26
05	3	3	3	4	1	1	2	2	19
06	2	1	3	5	4	4	3	2	24
07	1	2	1	1	0	1	1	2	09
08	0	0	1	3	3	0	0	0	07
09	1	0	3	4	2	2	1	3	16
10	3	3	3	4	4	3	5	6	31
11	1	1	1	3	3	2	0	0	11
12	1	0	1	2	1	1	1	0	07
13	2	2	2	2	1	1	0	0	09
14	0	0	0	0	0	0	0	0	0
15	0	3	1	1	2	2	2	2	13
16	2	2	2	3	2	1	1	2	15
17	3	4	5	3	2	1	1	3	22
18	2	2	1	1	2	1	0	0	09
19	0	0	1	3	3	3	1	1	12
20	1	1	1	1	1	1	1	1	08
21	0	1	2	1	1	0	1	2	08
22	0	1	4	5	5	6	3	3	27
23	2	2	3	2	2	2	2	2	17
24	1	2	4	4	2	2	2	3	20
25	2	3	3	4	3	3	3	3	24
26	2	3	4	3	4	4	4	2	26
27	1	2	3	3	4	4	3	3	23
28	1	1	3	5	5	4	2	3	24
29	2	3	5	5	5	4	6	3	33
30	3	2	1	2	2	1	1	2	14
31	2	2	2	0	3	3	3	3	18

MACQUARIE ISLAND

MAGNETIC K-INDICES - MARCH 1979

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	2	2	3	5	5	5	2	1	25
02	3	5	5	5	5	5	2	2	32
03	3	1	2	0	5	4	3	2	20
04	2	3	4	6	5	4	5	3	32
05	3	4	3	6	2	0	1	2	21
06	3	4	5	5	6	6	4	4	37
07	2	3	2	0	1	1	2	1	12
08	2	2	2	5	5	0	1	1	18
09	1	1	3	5	5	4	2	2	23
10	3	5	6	5	4	4	6	6	39
11	3	3	4	5	6	3	2	1	27
12	1	2	2	1	0	0	1	0	07
13	2	2	3	2	1	1	0	1	12
14	0	1	0	0	0	0	0	1	02
15	0	1	1	0	2	1	2	2	09
16	3	2	3	5	2	2	1	2	20
17	2	3	5	5	3	2	1	2	23
18	1	3	1	1	2	2	0	0	10
19	0	1	2	5	5	4	2	1	20
20	1	2	2	1	1	0	1	0	08
21	1	1	1	1	0	0	1	1	06
22	1	1	2	6	7	7	5	3	32
23	3	2	2	2	2	3	2	1	17
24	2	2	4	4	4	2	3	2	23
25	2	4	2	6	4	5	4	3	30
26	3	4	5	5	6	6	5	3	37
27	1	2	4	4	5	6	4	3	29
28	4	3	4	7	6	6	5	4	39
29	3	4	7	6	6	7	7	3	43
30	4	4	3	3	4	2	2	2	24
31	2	2	1	1	5	5	4	3	23

MAWSON

MAGNETIC K-INDICES - MARCH 1979

Range for lower limit of K = 9 is 1500 nT

<u>Day</u>	<u>K-Indices</u>								<u>K-Sum</u>
01	5	5	4	3	3	4	4	3	31
02	6	5	4	3	3	4	4	5	34
03	4	3	3	2	3	5	6	5	31
04	5	4	5	5	3	3	5	6	36
05	5	4	5	4	2	2	6	2	30
06	5	6	5	5	5	5	5	5	41
07	5	5	5	2	1	1	4	4	27
08	5	5	4	3	3	2	2	4	28
09	5	4	4	4	3	3	3	3	29
10	6	6	6	4	4	5	6	5	42
11	5	4	3	3	3	3	3	1	25
12	2	4	2	2	1	2	4	1	18
13	3	5	4	2	2	2	1	2	21
14	2	2	0	0	0	0	1	4	09
15	2	1	2	1	1	1	2	5	15
16	3	5	3	3	3	2	3	3	25
17	4	5	6	5	3	2	1	3	29
18	3	5	2	3	2	2	1	1	19
19	2	3	4	4	3	4	3	3	26
20	2	3	3	2	2	1	2	5	20
21	2	2	2	1	1	1	2	2	13
22	2	2	4	5	6	6	3	3	31
23	5	3	4	2	1	2	4	5	26
24	5	4	5	3	2	3	5	6	33
25	5	6	5	4	4	4	4	6	38
26	6	6	5	3	4	7	6	7	44
27	3	5	5	4	3	6	6	5	37
28	6	5	5	5	5	6	4	6	42
29	8	5	5	6	5	4	6	3	42
30	6	6	5	2	3	1	2	4	29
31	5	6	3	3	3	4	3	6	33

OBSERVATORY	COMMENCEMENT				SSC AMPLITUDES			MAX 3h INDEX K		RANGES			UT END	
	d	h	min	TYPE	D(')	H(nT)	Z(nT)	d	(3h-PERIOD) K	D(')	H(nT)	Z(nT)	d	h
PORT MORESBY	04	04	45	ssc*	*+0.2	+7	+8	4	(4)	6	6	150	80	05 11
	06	08	17	ssc	0	+8	+8	6	(4,5,6)	5	6	110	70	07 04
	17	02	32	ssc*	0	+21*	+19	17	(3)	5	4	160	90	17 19
	22	08	26	ssc	+0.4	+28	+21	22	(4)	7	8	170	85	23 09
	28	08	26	...	..	..	..	28 29	(4,5) (3,4,7)	5	7	150	65	30 09
GNANGARA	09	23	18	ssc*	+0.6*	+2*	+2*	09	(8) 10 (7,8)	5	20	130	130	11 18
	22	08	27	ssc*	+1.1*	+32*	+5*	22	(4,5,6)	5	21	160	160	23 10
	28	08	27	ssc*	+1.7*	+15*	+7*	29	(7)	6	22	110	120	30 12
TOOLANGI	17	02	32	ssc*	+1.2	+18*	+5	17	(3)	5	14	90	40	17 19
	22	08	26	ssc	+2.0	+27	+9	22	(6)	6	27	180	40	23 12
	28	08	27	ssc*	-1.4	+18*	+2	29	(7)	6	23	160	100	30 02

MARCH 1979

PRELIMINARY MONTHLY MEAN VALUES

OBSERVATORY	H	D	Z	F
	nT	o	'	nT
PORT MORESBY	35986	06 25.9E	-23573	43020
GNANGARA	23451	03 16.1W	-53618	58522
CANBERRA	23843	12 03.7E	-53780	58828
TOOLANGI	22069	11 02.2E	-56306	60476
MACQUARIE I	12747	28 17.8E	-63819	65080
MAWSON	18417	62 56.9W	-46916	50401
DAVIS	16835	76 15.8W	-52961	55572
CASEY	9510	89 15.0W	-64475	65173

The values are derived from magnetograms for selected quiet days except at Davis and Casey where they are derived from semi-weekly absolute measurements.

SUDDEN COMMENCEMENTS AND OTHER RAPID VARIATIONS

OBSERVATORY	DAY	TYPE AND QUALITY	TIME	SENSE AND AMPLITUDE OF CHIEF MOVEMENT		
				H(nT)	D(nT)	Z(nT)
PORT MORESBY	04	ssc* A	0445	+7	+2*	+8
	06	ssc A	0817	+8	0	+8
	17	ssc* A	0232	+21*	+0	+19
	22	ssc A	0826	+28	+4	+21
GNANGARA	04	ssc* B	0446	-8*	-15*	-9*
	06	ssc* B	0818	+22*	-4*	-2*
	09	ssc* B	0808	+21*	+14*	+11*
	09	ssc* C	2318	+2*	+4*	+2*
	15	ssc* B	0557	+15*	-4*	-1*
	17	ssc* B	0232	+12	-29*	-11*
	22	ssc* B	0827	+32*	+7*	+5*
	28	ssc* B	0827	+15*	+12*	+7*
TOOLANGI	09	ssc* B	0809	+18*	+2	+4
	15	ssc* B	0557	+18*	0	+4
	17	ssc* B	0232	+18*	+8	+5
	22	ssc B	0826	+27*	+13	+9
	28	ssc* B	0827	+18*	-9	+2